

## Amendments to the Claims:

### Listing of Claims:

1. (Currently Amended) A process ~~for managing capacity resources in a shared computing environment~~ comprising the steps of:

providing a shared computing environment in which a plurality of capacity resources are allocated in accordance with a capacity plan;

gathering, by a processor of a computer, a plurality of capacity data for a capacity resource set, the capacity resource set including a central processing unit, a storage, a memory, a network hardware, and a plurality of peripheral devices;

analyzing, by the processor, the plurality of capacity data by ~~extracting one or more capacity obligations from a database and~~ comparing [[the]] one or more capacity obligations with [[a]]the plurality of ~~identified~~ existing resources to identify a first set of capacity obligations that can be met with the plurality of ~~existing~~ capacity resources, and to identify a second set of capacity obligations that require a plurality of additional resources[[,]]; [[and]]

analyzing, by the processor, a ~~task control block versus a system resource block~~ time required to move a plurality of workloads from one set of central processing unit engines to another set of central processing unit engines in order to meet the second set of capacity obligations, wherein the time includes a task control block time; and

generating, by the processor, [[a]]the capacity plan for using the plurality of ~~identified~~ existing resources and the plurality of ~~identified~~ additional resources to meet the one or more capacity obligations.

2. (Canceled)

3. (Currently Amended) The process of Claim 1 wherein gathering capacity data comprises the steps of:

- determining capacity data requirements;
- determining suppliers of the capacity data;
- determining if the capacity data is already available;
- acquiring the capacity data from [[the]]a database;
- validating the capacity data;
- determining if there is a need for the capacity data; and
- updating and documenting the database;

wherein the plurality of capacity data comprises a plurality of standard data and a plurality of non-standard data, and wherein the plurality of standard data comprises central processing unit minutes, disk storage, net bandwidth, memory used, and wherein the plurality of non-standard data comprises caching.

4. (Canceled)

5. (Previously Presented) The process of Claim 1 further comprising the steps of:

before gaining approval for the capacity plan, designing a configuration to support the capacity plan; and

testing the designed configuration to determine if the configuration is capable of balancing a workload as required to meet existing and anticipated capacity obligations; gaining approval for the capacity plan from one or more persons with the authority to commit to the implementation of the capacity plan;

- notifying any parties to the capacity plan of the plan details;
- handling capacity requests from a requester;
- performing analysis review on capacity requests to identify capacity issues;
- executing a problem manager program in a data-processing system to resolve any identified capacity issues so that a service provider can meet all service obligations;
- responsive to determining that the capacity data is not already available, contacting the capacity data owner;
- requesting the capacity data;

justifying the request for the capacity data to the capacity data owner; and  
identifying a plurality of future capacity planning issues based on a set of projection methodologies including business drivers, linear regression, percent change, direct customer input, and historical trend data.

6. (Previously Presented) The process of Claim 1 further comprising the step of, before gaining approval for the capacity plan, analyzing the performance impact of the capacity plan by determining the impact to the components of the capacity plan during the plan period.

7. (Previously Presented) The process of Claim 1 wherein handling a capacity request comprises the steps of:

- analyzing the capacity request with a problem management program;
- extracting a requester's entitlements and provided data from a database;
- determining if the requester is entitled to have the capacity request satisfied;
- responsive to determining that the requester is entitled to have the capacity request satisfied, determining if any not provided data is required to satisfy the capacity request;
- responsive to determining that a not provided data is required to satisfy the capacity request, submitting a request for the not provided data to a collection team, receiving the not provided data from the collection team, and reviewing the not provided data received from the collection team;
- analyzing the capacity plan against actual usage data; and
- updating the capacity plan to reflect the result of the capacity request.

8. (Original) The process of claim 7 wherein analyzing the capacity plan against actual usage data comprises the steps of:

- obtaining plan data from the database;
- obtaining actual usage data from the database;
- comparing the plan data with actual usage data;
- determining from the comparison if the actual usage data deviates from the plan data; and
- responsive to determining that the actual usage data deviates from the plan data, investigating the deviations.

9. (Original) The process of claim 8 wherein investigating the deviations comprises the steps of:
- determining if the deviation is the result of an anomaly; and
  - responsive to determining that the deviation is a result of an anomaly, documenting the deviation.
10. (Original) The process of claim 8 wherein investigating the deviations comprises the steps of:
- determining if the deviation is the result of a business cycle;
  - responsive to determining that the deviation is the result of a business cycle, documenting the deviation.
11. (Original) The process of claim 8 wherein investigating the deviations comprises the steps of:
- determining if the deviation is the result of bad data capture; and
  - responsive to determining that the deviation is the result of a bad data capture, documenting the bad data capture details with a problem management program and documenting the deviation with a problem management program.
12. (Original) The process of claim 8 wherein investigating the deviations comprises the steps of:
- determining if the deviation is the result of an unknown reason; and
  - responsive to determining that the deviation is the result of an unknown reason, documenting the deviation with a problem management program, determining if the deviation is likely to re-occur, and responsive to determining that the deviation is likely to re-occur, documenting the required capacity plan changes.

13. (Original) The process of Claim 1 wherein handling a capacity request comprises the steps of:

- analyzing the capacity request with a problem management program;
- extracting the requester's entitlements and standard data from a database;
- determining if the requester is entitled to have the capacity request satisfied;
- responsive to determining that the requester is entitled to have the capacity request satisfied, determining if any non-standard data is required to satisfy the capacity request;
- responsive to determining that non-standard data is required to satisfy the capacity request, submitting a request for the non-standard data to a collection team, receiving the non-standard data from the collection team, and reviewing the non-standard data received from the collection team;
- managing capacity data for reporting;
- determining if new or changed reports are required;
- responsive to determining that new or changed reports are required, running reports; and
- updating the capacity plan to reflect the result of the capacity request.

14. (Original) The process of Claim 13 wherein managing capacity data for reporting comprises the steps of:

- determining the data required for generating reports;
- determining if additional data elements are needed for generating reports;
- responsive to determining that additional data elements are needed for generating reports, requesting the additional data elements from a data collection team, and responsive to receiving the additional data elements from the data collection team, validating the additional data elements;
- determining the report format;
- determining the frequency and date of reporting;
- determining the destination for the report; and
- notifying a report recipient when the report is available for retrieval from a database.

15. (Original) The process of Claim 13 wherein running reports comprises the steps of:  
extracting report specifications from the database;  
creating pre-defined reports with a reporting program;  
determining if the report format or report content requires correction;  
responsive to determining that the report requires correction, making the required changes to the report; and  
distributing reports to one or more report recipients.
16. (Original) The process of Claim 1 wherein handling a capacity request comprises the steps of:  
analyzing the capacity request with a problem management program;  
extracting the requester's entitlements and standard data from a database;  
determining if the requester is entitled to have the capacity request satisfied;  
responsive to determining that the requester is entitled to have the capacity request satisfied, determining if any non-standard data is required to satisfy the capacity request;  
responsive to determining that non-standard data is required to satisfy the capacity request, submitting a request for the non-standard data to a collection team, receiving the non-standard data from the collection team, and reviewing the non-standard data received from the collection team;  
analyzing trends; and  
updating the capacity plan to reflect the result of the capacity request.
17. (Original) The process of Claim 16 wherein analyzing trends comprises the steps of:  
identifying relevant trends;  
obtaining historical capacity data from the database;  
determining if a specific analysis is required;  
responsive to determining that a specific analysis is required, determining if additional capacity data is available, responsive to determining that additional capacity data is not available, requesting the additional capacity data from a collection team;  
obtaining the additional capacity data;  
selecting resource types and workload types to identify trends;

responsive to identifying trends, documenting the trends in the database;  
determining if any identified trends deviate from the capacity plan; and  
responsive to determining that one or more identified trends deviates from the capacity plan, investigating the deviations.

18. (Original) The process of claim 17 wherein investigating the deviations comprises the steps of:

determining if the deviation is the result of an anomaly; and  
responsive to determining that the deviation is a result of an anomaly, documenting the deviation.

19. (Original) The process of claim 17 wherein investigating the deviations comprises the steps of:

determining if the deviation is the result of a business cycle;  
responsive to determining that the deviation is the result of a business cycle, documenting the deviation.

20. (Original) The process of claim 17 wherein investigating the deviations comprises the steps of:

determining if the deviation is the result of bad data capture; and  
responsive to determining that the deviation is the result of a bad data capture, documenting the bad data capture details with a problem management program and documenting the deviation with a problem management program.

21. (Original) The process of claim 17 wherein investigating the deviations comprises the steps of:

determining if the deviation is the result of an unknown reason; and  
responsive to determining that the deviation is the result of an unknown reason, documenting the deviation with a problem management program, determining if the deviation is likely to re-occur, and responsive to determining that the deviation is likely to re-occur, documenting the required capacity plan changes.

22. (Original) The process of Claim 1 wherein handling a capacity request comprises the steps of:

- analyzing the capacity request with a problem management program;
- extracting the requester's entitlements and standard data from a database;
- determining if the requester is entitled to have the capacity request satisfied;
- responsive to determining that the requester is entitled to have the capacity request satisfied, determining if any non-standard data is required to satisfy the capacity request;
- responsive to determining that non-standard data is required to satisfy the capacity request, submitting a request for the non-standard data to a collection team, receiving the non-standard data from the collection team, and reviewing the non-standard data received from the collection team;
- analyzing commitments and thresholds;
- determining if threshold changes are required;
- responsive to determining that threshold changes are required, using a problem manager program to determine the new threshold value; and
- updating the capacity plan to reflect the result of the capacity request.

23. (Original) The process of Claim 22 wherein analyzing commitments and thresholds comprises the steps of:

- obtaining operational trend data from the database;
- obtaining capacity and performance objectives from the database;
- obtaining service level attainment and customer satisfaction data from the database;
- determining if any service commitments have been missed;
- responsive to determining that one or more service commitments have been missed, determining resource usage at the time of the missed service commitment;
- reviewing thresholds against current service commitments;
- determining if threshold changes are required;
- responsive to determining if threshold changes are required, documenting the required threshold changes;
- determining if capacity plan changes are required; and



responsive to determining that capacity plan changes are required, updating the capacity plan to reflect the required changes.

24. (Original) The process of Claim 1 wherein handling a capacity request comprises the steps of:

- analyzing the capacity request with a problem management program;
- extracting the requester's entitlements and standard data from a database;
- determining if the requester is entitled to have the capacity request satisfied;
- responsive to determining that the requester is entitled to have the capacity request satisfied, determining if any non-standard data is required to satisfy the request;
- responsive to determining that non-standard data is required to satisfy the capacity request, submitting a request for the non-standard data to a collection team, receiving the non-standard data from the collection team, and reviewing the non-standard data received from the collection team;
- forecasting resource requirements; and
- updating the capacity plan to reflect the result of the capacity request.

25. (Original) The process of Claim 24 wherein forecasting resource requirements comprises the steps of:

- gathering resource and workload requirements;
- obtaining load requirements from the database;
- obtaining historical trends from the database;
- characterizing and sizing workload requirements;
- determining and applying a projection methodology;
- forecasting and sizing periods for the workload requirements;
- translating the workload requirements to technical resource needs; and
- updating the capacity plan to reflect the technical resource needs.

26. (Original) The process of Claim 25 wherein characterizing and sizing workload requirements comprises the steps of:

- identifying a unit of workload;
- determining a period of interest;
- determining a magnitude of usage;
- determining a duration of usage;
- extracting resource usage data from the database for the period of interest;
- determining the resource used per unit of workload;
- correlating the unit of workload with the resource usage data;
- applying assumptions;
- applying and normalizing factors; and
- validating results with peer reviews.

27. (Original) The process of Claim 25 wherein determining and applying a projection methodology comprises the steps of:

- reviewing available workload data;
- evaluating appropriateness and source of workload data;
- choosing the most appropriate projection methodology;
- applying the chosen projection methodology;
- producing forecast projections and assumptions; and
- storing the forecast projections and assumptions in the database.

28. (Original) The process of Claim 1 wherein handling a capacity request comprises the steps of:

- analyzing the capacity request with a problem management program;
- extracting the requester's entitlements and standard data from a database;
- determining if the requester is entitled to have the capacity request satisfied;
- responsive to determining that the requester is not entitled to have the capacity request satisfied, documenting the entitlement failure details;
- handling the service entitlement failure; and
- notifying the requester that the request will not be fulfilled.

29. (Original) The process of Claim 28 wherein handling the service entitlement failure comprises the steps of:

- determining if the capacity request is covered by a contract; and
- responsive to determining that the capacity request is not covered by the contract, advising the requester that the capacity request will be cancelled.

30. (Original) The process of Claim 28 wherein handling the service entitlement failure comprises the steps of:

- determining if the capacity request is covered by a contract;
- responsive to determining that the capacity request is covered by a contract, determining if the requester is entitled to any available alternatives;
- responsive to determining that the requester is entitled to one or more available alternatives, reviewing the available alternatives with the requester to gain acceptance of at least one of the available alternatives; and
- responsive to gaining acceptance of at least one of the available alternatives, updating the capacity plan to reflect the result of the capacity request.

31. (Original) The process of Claim 28 wherein handling the service entitlement failure comprises the steps of:

- determining if the capacity request is covered by a contract;
- responsive to determining that the capacity request is covered by a contract, determining if the requester is entitled to any available alternatives;
- responsive to determining that the requester is not entitled to any available alternatives, obtaining approval for the original request; and
- updating the capacity plan to reflect the result of the capacity request.

32. (Currently Amended) ~~The process of Claim 1 embedded in~~ A computer program product for managing capacity resources in a shared computing environment, the computer program product comprising:

a non-transitory computer readable storage medium;

first program instructions for providing a capacity planner that produces and maintains a capacity plan, wherein the capacity plan substantially identifies a plurality of current capacity resources and a plurality of needed capacity resources and substantially describes an allocation of the plurality of current capacity resources and the plurality of needed capacity resources;

second program instructions for executing the capacity plan so that the service provider meets all service obligations;

third program instructions for analyzing a time required to move a plurality of workloads from one set of central processing unit engines to another set of central processing unit engines in order to meet the plurality of service obligations; and

fourth program instructions for identifying a plurality of future capacity planning issues using business drivers, linear regression, percent change, direct customer input, and historical trend data;

wherein the plurality of capacity data comprises a plurality of standard data and a plurality of non-standard data, and wherein the plurality of standard data comprises central processing unit minutes, disk storage, net bandwidth, memory used, and wherein the plurality of non-standard data comprises caching; and

wherein the first, second, third, and fourth program instructions are stored on the non-transitory computer readable storage medium.

33. (Currently Amended) A system for managing capacity resources in a shared computing environment comprising:

a processor of a computer, a computer readable memory and a computer readable storage medium in the shared computing environment provided by a service provider having a plurality of service obligations to a plurality of customers, the computer, and a plurality of capacity resources;

a service provider;

a plurality of service obligations;

~~a computer and a plurality of capacity resources including a central processing unit, a storage, a memory, a network hardware, and a plurality of peripheral devices; and~~

first program instructions for providing a capacity planner that produces and maintains;  
~~by a processor;~~ a capacity plan, wherein the capacity plan substantially identifies a plurality of  
current capacity resources and a plurality of needed capacity resources and substantially  
describes ~~[[the]]~~ an allocation of the plurality of current capacity resources and the plurality of  
needed capacity resources~~[[, and]]~~;

second program instructions for executing ~~executes~~ the capacity plan so that the service  
provider meets all service obligations~~[[,]]~~;

third program instructions for analyzing ~~that analyzes, by the processor;~~ a ~~task control~~  
~~block versus a system resource block~~ time required to move a plurality of workloads from one  
set of central processing unit engines to another set of central processing unit engines in order to  
meet the plurality of service obligations; and

fourth program instructions for identifying ~~that identifies~~ a plurality of future capacity  
planning issues ~~based on a set of projection methodologies including~~ using business drivers,  
linear regression, percent change, direct customer input, and historical trend data;

wherein the plurality of capacity data comprises a plurality of standard data and a  
plurality of non-standard data, and wherein the plurality of standard data comprises central  
processing unit minutes, disk storage, net bandwidth, memory used, and wherein the plurality of  
non-standard data comprises caching; and

wherein the first, second, third, and fourth program instructions are stored on the  
computer readable storage medium for execution by the processor via the computer readable  
memory.

34. (Currently Amended) The system of Claim 33 wherein the capacity planner further  
handles capacity requests and wherein the time includes a task control block time.

35. (Original) The system of Claim 33 wherein the capacity planner further reviews capacity  
requests to identify capacity issues that should be resolved in a future capacity plan.

36. (Canceled)